NILES®

INSTALLATION GUIDE

4 SOURCE, 4 ZONE AUDIO MULTIZONE RECEIVER KIT WITH AM/FM TUNER

ZR-4

CONGRATULATIONS!

Thank you for purchasing the Niles **ZR-4 MultiZone Receiver Kit**. With proper installation and operation, you should enjoy years of trouble-free use.

Niles manufactures the industry's most complete line of custom installation components and accessories for audio video systems. To see the complete Niles product assortment, visit us on the Internet at: **www.nilesaudio.com.**

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INTRODUCTION

The Niles **ZR-4 MultiZone Receiver Kit** is a four-source, four-zone distributed audio system. The ZR-4 is packaged as a complete kit and includes a MultiZone Receiver with built-in AM/FM tuner, four weather-resistant keypads, a hand-held learning remote control, rack mount ears, and three infrared MicroFlashers® to control the connected audio sources. The system is easily expandable to eight zones with an additional ZR-4 MultiZone Receiver Kit.

Figure 1. Niles ZR-4 MultiZone Receiver Kit

FEATURES AND BENEFITS

FOUR-SOURCE, FOUR-ZONE MULTIZONE RECEIVER

Any of the ZR-4 MultiZone Receiver's four audio sources can be routed to any of the four zone outputs to provide high-quality entertainment throughout the house

BUILT-IN AM/FM TUNER

Provides out-of-the-box radio reception without additional components, connections, or programming

WEATHER-RESISTANT KEYPADS

The ZR-4 MultiZone Receiver Kit comes with four weather-resistant keypads to accommodate installations in moist areas such as bathrooms, spas, or even outdoors under an eave. Additional keypads are available as an option

HAND-HELD LEARNING REMOTE CONTROL

The included remote control comes pre-programmed to control most popular audio sources, and also "learns" the IR commands for other sources not included in the on-board library. Additional hand-held learning remote controls are available as an option

THREE ANALOG AUDIO INPUTS

Up to three external stereo audio sources, in addition to the built-in AM/FM tuner, can be connected, controlled and distributed to any of the four zones

BUILT-IN EIGHT-CHANNEL DIGITAL AMPLIFIER

Our high-quality digital amplifier delivers 40 watts per zone (20 watts per channel), generates minimal heat, and can comfortably drive two pairs of 8 ohm speakers per zone

RS-232 AND DISCRETE IR CONTROL FOR EACH ZONE

The ZR-4 MultiZone Receiver provides seamless integration with third-party remote control systems

PREAMPLIFIER OUTPUT AND 12V TRIGGER

Makes it easy to add additional power with Niles System Integration Amplifiers® (zone 4 only)

PAGING INPUT

Accommodates voice announcements from a telephone system and/or doorbell chimes (doorbell chimes require the Niles **DBI-1** interface)

INDEPENDENT BASS, TREBLE, AND VARIABLE LOUDNESS CONTROLS

Each zone can be custom-tuned to maximize sound performance and match room acoustics

EXPANDABLE TO EIGHT ZONES

System architecture allows expansion to eight zones via an additional ZR-4 MultiZone Receiver Kit

SUPPORTS UP TO TWO KEYPADS PER ZONE

Ideal for use in large rooms (additional keypads sold separately; requires ZR-KE Keypad Expander)

ZONE LINKING

Permanently group up to four zones per chassis: turn-on, source selection, and turn-off work in unison, yet each zone retains independent volume, bass, treble, and variable loudness control

PARTY OR WHOLE HOUSE MODE

Temporarily turns on the entire house (or a pre-set number of zones) to the same audio source for entertaining large groups

VIRTUAL HOME THEATER ZONE

Enables source sharing with an independent home theater system via the global IR input and home theater sync

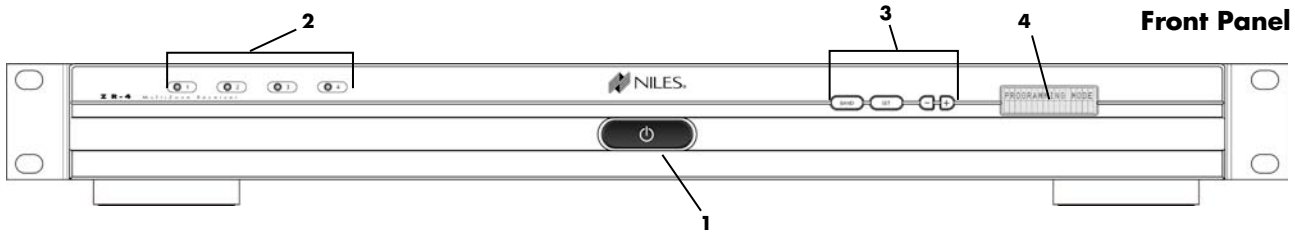
CONTENTS

After unpacking and before installation, the installer should carefully inspect the contents. If any damage is discovered due to shipping, the installer should contact Niles for assistance (see back cover or Warranty Card for contact information.) Also, keep all packing materials in case the product needs to be returned to the factory.

- (1) ZR-4 MultiZone Receiver
- (1) Removable North American Power Cable
- (2) Rack Mount Ears
- (4) Weather-Resistant Keypads
- (1) R-6L Hand-Held Learning Remote Control
- (3) Infrared MicroFlashers®
- (1) Safety Sheet
- (1) Installation Manual
- (1) FM Dipole Antenna
- (1) AM Loop Antenna
- (1) Installation Guide
- (1) List of R-6L Setup Codes

PARTS GUIDE

ZR-4 MULTIZONE RECEIVER

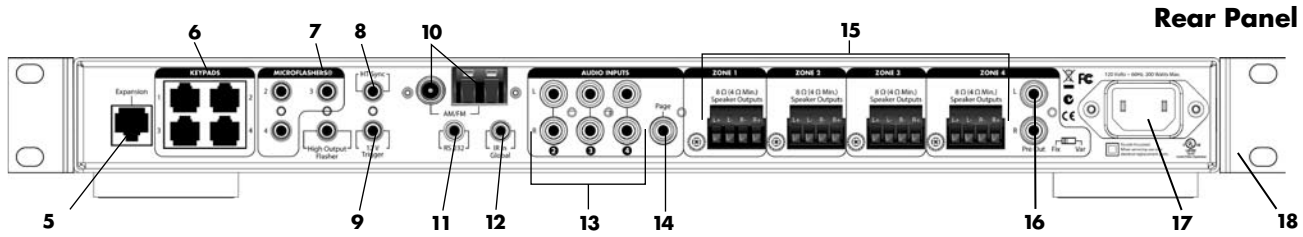


1) Main Power Switch – This push-button, latching switch turns the main power to the ZR-4 MultiZone Receiver ON and OFF

2) LED Zone ON/OFF Indicators – Individually illuminate when the corresponding zone is active and turn off when the zone is in standby

3) Band, Set, Tune –, and Tune + Push Buttons – Used to operate the AM/FM tuner, set favorite preset stations into memory, and perform system configuration operations

4) Backlit LCD Display –This two-line, 16-character, LCD display shows tuner preset and setup information, plus current tuner preset, band, and station tuning



5) Expansion Connection – This RJ-45 connector allows data to be carried between a Master and Slave ZR-4 over CAT-5 cable to create an eight-zone system

6) Keypad Ports – Four zone-specific RJ-45 connector ports connect to each zone's keypad with CAT-5 cable using the T568A wiring convention

7) Flasher Outputs – Four 3.5mm connectors. The three supplied Infrared MicroFlashers® connect to flasher outputs 2-4 and then attach to each source component's respective IR window. The High Output Flasher Port is to be used only with an optional Niles IRB1 High Output IR Flasher to control an entire stack of source components. Do not connect MicroFlashers® to the High Output Flasher Port.

8) HT (Home Theater) Sync – This 3.5mm connector lets the ZR-4 know when a home theater system is On. The ZR-4 will not go into standby even if all of its zones are off until this voltage is eliminated

9) Global 12V Control Output - A single 3.5mm jack provides a 12V DC trigger signal for use with external components such as an external power amplifier or a Niles AC-3 Voltage-triggered AC Power Strip (sold separately) to automate power turn-on and turn-off of connected components

10) Tuner Antenna Inputs - A female coaxial F-connector and two spring-loaded bare-wire jacks provide connection to the included FM and AM antennas

11) RS-232 Connection - One 3.5mm stereo connector for RS-232C serial communication allows the ZR-4 MultiZone Receiver to be monitored and controlled via an external control system such as AMX®

12) IR Input Port - A single 3.5mm jack provides an input connection for IR commands sent from a third-party remote control or a home theater system. These IR commands are used to control the ZR-4 MultiZone Receiver and to control source components

13) Analog Audio Source Inputs - Three pairs of line level analog stereo audio inputs utilizing gold-plated RCA connectors for audio sources 2-4

14) Paging Input - Connects to a compatible telephone system and/or a doorbell (doorbell requires Niles DBI-1 interface). Overrides all other inputs to produce a page into pre-selected zones at a preset volume level

15) Speaker Connections - Four sets of removable connectors, one for each zone. Accept speaker wire up to 16 AWG in size

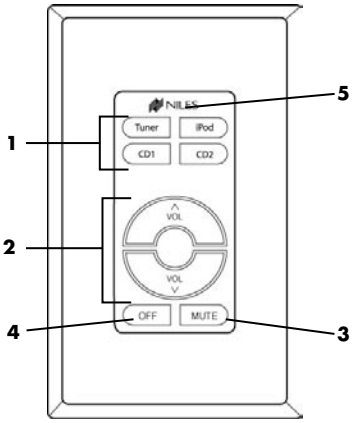
16) Pre-Out Outputs - Assigned to Zone 4, this stereo pair can be switched between a fixed output or a variable output

17) IEC Power Receptacle - Two-pin power socket to connect the removable power cord. This is the AC power disconnect for the ZR-4 MultiZone Receiver and should be made accessible during use

18) Rack Mount Ears - Two metal rack-mount ears for installation into a professional metal rack. When attached, the ZR-4 MultiZone Receiver is 1U (Unit) high

WEATHER-RESISTANT KEYPAD

FRONT PANEL



1) Master Keys - Press any of these keys to turn the zone on and play the selected source component. Each Master Key can be custom labeled for all of today's popular audio sources and will illuminate green when activated. Pressing and holding any Master Key for three seconds puts the ZR-4 MultiZone Receiver into Party Mode. This feature will turn on all enabled zones to the selected source at a factory preset party volume *(see configuration **page 25** for details.)*

2) Zone Volume Keys - A continuous press of these keys raises or lowers the volume in the zone

3) Zone Mute Key - Press this key to mute the sound in the zone. The Mute key will illuminate red when the zone is muted. Pressing the Mute key again, the volume up arrow, or a Master key restores the volume

4) Zone Off Key - Press this key to turn the zone off. Pressing and holding this key for longer than three seconds turns off the entire system (all zones)

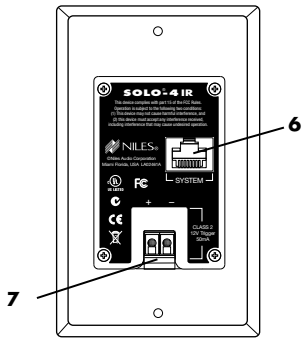
5) Built-In IR Sensor - Located behind the Niles logo on the faceplate is a plasma and LCD-proof IR sensor that enables hand-held remote control operation of the zone and sources

REAR PANEL

6) RJ-45 Connector From System - Connects to a ZR-4 MultiZone Receiver Keypad Port with CAT-5 cable using the T568A wiring convention

7) 12V-LS-IOP - This terminal connection for a 12V Control Output activates when its zone is on. It is commonly used to trigger the optional LS-I0P wallplate and turns off when the zone is off

Rear Panel



HAND-HELD LEARNING REMOTE CONTROL

1) Source Select Keys – Pressing one of the keys selects the built-in AM/FM tuner or any of the up to three connected (SRC 2-4) sources for playback and operation. There are also additional Source Select Keys to operate a TV and an auxiliary component such as a DVD player connected to the TV. The LED in the Source Key provides feedback.

2) On and Off Keys – Turns the selected device On or Off

3) Setup Key – This key is used to configure the remote

4) Transport Keys – Used to skip backward, rewind, fast forward, skip forward, stop, pause, or play tracks from the selected source

5) Menu Key – Press this key to display a menu for the selected source

6) Info Key – Press this key to display the current channel and program information

7) Menu Cursor Keys – Use these keys to move the cursor in the menu screen. Press OK to choose the highlighted menu option or to toggle between the AM and FM tuner bands

8) Volume Keys – These keys are used to raise or lower the sound level. Press the Mute key to turn the sound off or on

9) Channel Select Keys – These keys are used to select the next or previous channel and to select next or previous chapter on some models of DVD players. Press the Last key to recall the last-viewed channel

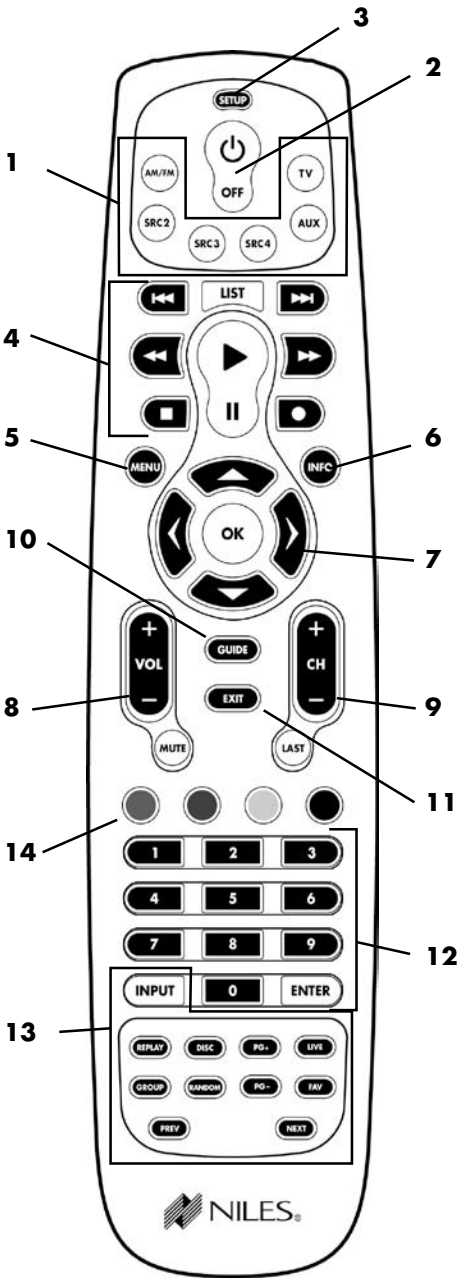
10) Guide Key – Press this key to display the program guide for the selected source

11) Exit Key – Press this key to exit the selected source's menu, guide, or program without making a menu selection

12) Direct Access Keys – Directly enter channels (for example: 09 or 31). Press the Enter key to send channel number entry on certain TV models

13) Extended Function Keys – Provide additional functionality for advanced features, menus, and guides

14) DVR Function Keys – Support advanced functions for many DVD's.



INSTALLATION CONSIDERATIONS

PLACEMENT OF THE ZR-4 MULTIZONE RECEIVER

Place the ZR-4 MultiZone Receiver on a flat, level surface such as a table or shelf, with its weight equally distributed on each of its four feet. Placing the weight of the receiver on the rear or front panel for even an instant may result in damage to the receiver's connectors and controls. Like any high-fidelity component, the ZR-4 MultiZone Receiver will last much longer if it is given adequate ventilation for proper cooling. When installing the ZR-4 MultiZone Receiver in a cabinet, be sure that the rear of the cabinet is open to receive fresh air in order to provide proper cooling. Place the ZR-4 MultiZone Receiver so it has air space above it (minimum 1.75"). If this is not possible, we suggest adding an optional Niles FM-1 or FM-1R System Cooling Module. If the receiver is located on a carpeted surface, place a board under the receiver's feet. Do not block the ventilation holes on the top and bottom. When installed in a professional rack using the rack mounting ears, provide a minimum of 1 unit space above and below the ZR-4.

(CONTINUED ON NEXT PAGE)

CAT-5 CABLE - T568A TERMINATION

The ZR-4 MultiZone Receiver could have as many as five CAT-5 cables connected. Labels are recommended to describe where each cable originates (not to which terminal it connects). The CAT-5 must be terminated with RJ-45 connectors using the T568A wiring convention (**Figure 2**).

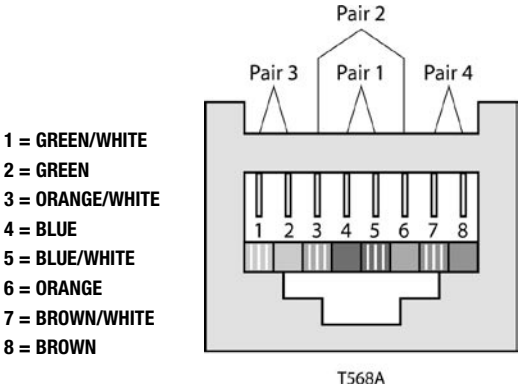


Figure 2. T568A wire termination

SYSTEM CONFIGURATIONS (APPLICATIONS)

SYSTEM CONFIGURATION 1

STAND-ALONE ZR-4 MULTIZONE RECEIVER KIT

This is the simplest of the configurations. It depicts one Niles ZR-4 MultiZone Receiver Kit installed to provide sound in four listening zones. Each zone includes a pair of speakers (sold separately) and one Solo-4 IR Keypad.

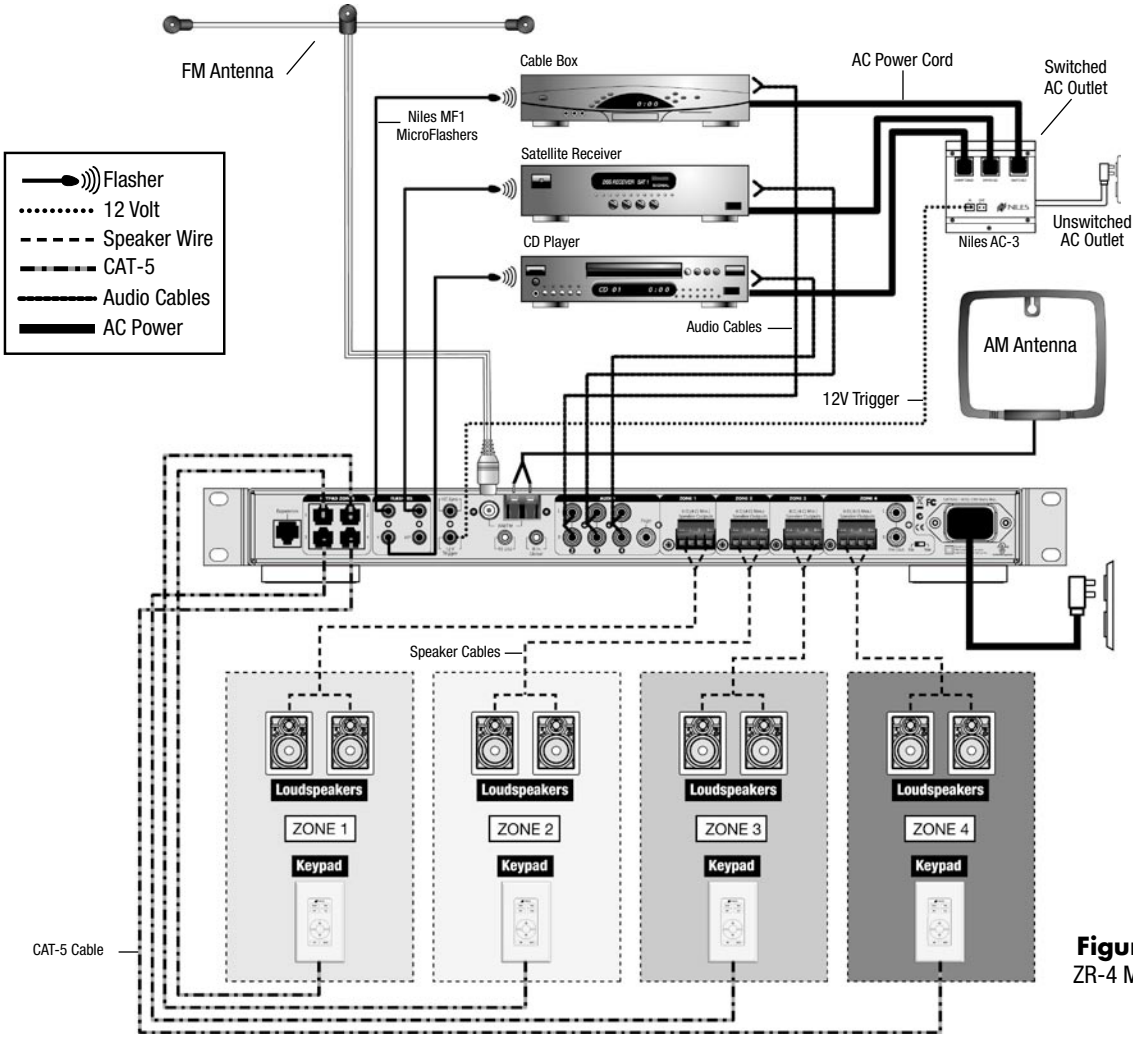


Figure 3. Stand-Alone ZR-4 MultiZone Receiver Kit

SOURCE COMPONENTS

The ZR-4 MultiZone Receiver has RCA audio inputs for connecting three external source components. In addition to the built-in AM/FM tuner, these three source components can be selected to play in any of the four zones. With this configuration, a user in one zone can listen to a source component while another user in a different zone listens to a different source component (e.g. the CD can be selected in Zone 1 while the AM/FM tuner is selected in Zone 2). Additionally, each of the four zones can be set to an individual volume level. If more than one zone chooses the same source component, control of that source component is shared between the zones.

KEYPADS

Keypads with built-in IR sensors plus a Hand-Held Remote Control enable the user to control the Niles ZR-4 MultiZone Receiver and its connected source components. The built-in AM/FM tuner is controlled directly from the Keypad. The input for the connected source components is also controlled by the Keypad, but all source component functions are controlled using the Hand-Held Remote Control. The Keypads connect to the ZR-4 MultiZone Receiver by a "home run" of CAT-5 cable terminated with RJ-45 connectors using the T568A wiring convention. (See **Page 6**).

MICROFLASHER OUTPUTS

The included Niles MicroFlashers® connect to the numbered flasher outputs on the rear panel of the Niles ZR-4 MultiZone Receiver. Niles MicroFlashers send IR commands to the individual source components for control. An optional Niles IRB-1 High-Output IR Flasher (FG01023) can be connected to the flasher port labeled High Output Flasher to control more than one source component at a time.

GLOBAL 12V CONTROL OUTPUT

An optional Niles AC-3 Voltage-Triggered AC Power Strip (FG00242) can be connected to the 12V Control Output to automate source component turn-On and turn-Off, as well as an external power amplifier turn-On and turn-Off.

LOUDSPEAKERS

Each zone has "home run" speaker cables from the Niles ZR-4 MultiZone Receiver to the location of the speakers. Connections are made utilizing removable speaker terminals. These terminals accept speaker wire up to 16 AWG in size. The receiver's high-quality digital amplification can accommodate one pair of 4 ohm speakers per zone or two pairs of 8 ohm speakers per zone without going into protection or shutting down.

AM/FM ANTENNA CONNECTIONS

The included FM Dipole Antenna connects to the female 75 ohm coaxial connector and the AM Loop Antenna connects to the spring-loaded terminals labeled AM and GND. Antennas must be connected to both ZR-4s when using two ZR-4 MultiZone Receivers.

SYSTEM CONFIGURATION 2

EXPANDING TO EIGHT ZONES USING TWO ZR-4 KITS

This configuration demonstrates the expand ability of the ZR-4 MultiZone Receiver Kit. Two complete kits are integrated to create a four-source, eight-zone audio system.

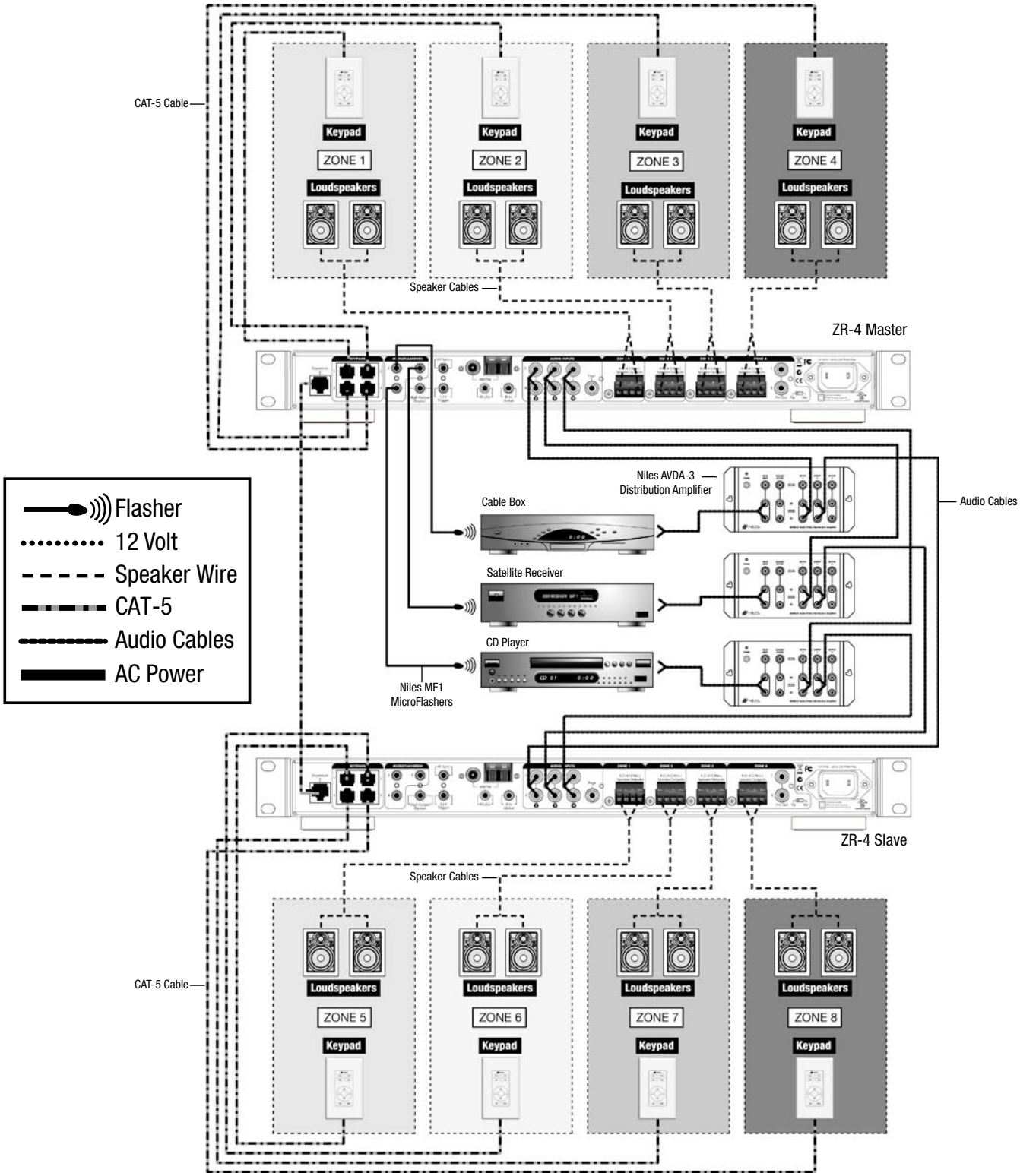


Figure 4. Expanding to Eight Zones Using Two ZR-4 Kits

EXPANSION CONNECTION

This RJ-45 port connects the two ZR-4 MultiZone Receivers with CAT-5 cable using the T568A wiring convention. One ZR-4 MultiZone Receiver will be configured to be the Master, the other to be the Slave.

SOURCE COMPONENTS

The audio output of the source components must be routed to both the Master and Slave MultiZone Receivers. This is best accomplished using a Niles AVDA-3 Source Level Stereo Audio/Video Distribution Amplifier (FG00814) for each source. A second but less effective method would be to use RCA Y-adaptors to split the source component outputs in two, one going to the Master chassis, the other to the Slave chassis.

SOURCE COMPONENT CONTROL

All MicroFlashers for source component control must also connect to the Master and not the Slave. IR from the Keypads connected to the Slave chassis will be routed to the Master chassis via the expansion connection port.

KEYPADS

Keypads for the additional zones are connected to the Slave chassis Keypad ports. These Keypads connect to the Slave ZR-4 by a “home run” of CAT-5 cable with RJ-45 connectors utilizing the T568A wiring convention.

LOUDSPEAKERS

Each additional zone has “home run” speaker cables from the Slave Niles ZR-4 MultiZone Receiver to the location of the speakers. Connections are made utilizing removable speaker terminals. These terminals accept speaker wire up to 16 AWG in size.

EXTERNAL CONTROL

All external IR or RS-232C control must be made to the Master only, and not to the Slave. The commands necessary to control the Slave will be relayed through the expansion connection.

SYSTEM CONFIGURATION 3

ZR-4 MULTIZONE RECEIVER INTEGRATED WITH A HOME THEATER SYSTEM

The ZR-4 can share source components with a home theater system.

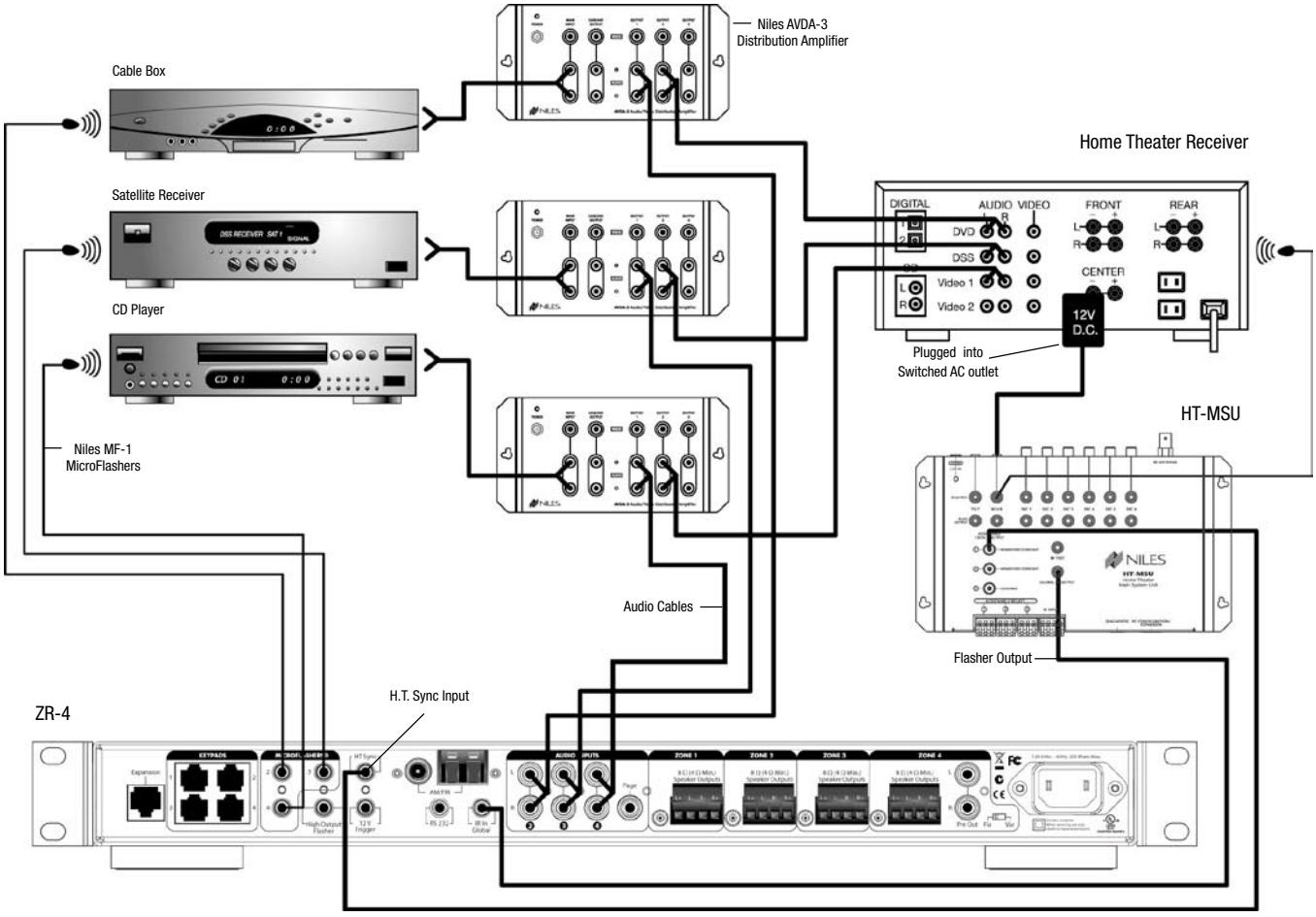


Figure 5. ZR-4 Integrated with a Home Theater System

IR CONTROL INPUT

The ZR-4 accepts IR commands from a home theater system through the global IR Control Input. This activates the virtual "home theater zone."

HT SYNC

This 3.5mm connector lets the ZR-4 MultiZone Receiver know when the home theater receiver is active. The ZR-4 will not go into standby mode or turn off the shared source until all of its zones are off and this voltage is eliminated.

SOURCE COMPONENTS

The audio output of the source components must be routed to both the ZR-4 MultiZone Receiver and the home theater receiver. This is best accomplished using a Niles AVDA-3 Source Level Stereo Audio/Video Distribution Amplifier (FG00814) for each source. A second but less effective method would be to use RCA Y-adaptors to split the source component outputs in two, one going to the ZR-4 MultiZone Receiver, the other to the home theater receiver.

SYSTEM CONFIGURATION 4

ZR-4 MULTIZONE RECEIVER WITH EXTERNAL RS-232 CONTROL SYSTEM

The ZR-4 MultiZone Receiver can be monitored and controlled by an external control system that uses RS-232C serial communication.

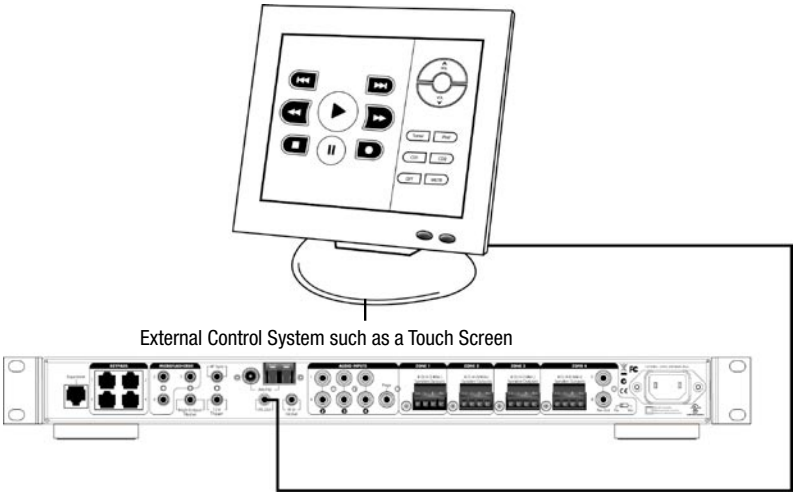


Figure 6. ZR-4 with External RS-232C Control System

RS-232 CONNECTION

A single 3.5mm stereo female-tip positive connector is used for RS-232C serial communication from an external control system such as AMX®. Refer to appendix at **www.nilesaudio.com/techsupport** for RS-232C integration.

SYSTEM CONFIGURATION 5

ZR-4 MULTIZONE RECEIVER WITH TWO KEYPADS IN A ZONE

Any zone of the ZR-4 MultiZone Receiver can be expanded to contain two Keypads. This is especially convenient in large rooms or in bedrooms where a Keypad is desired on each side of the bed.

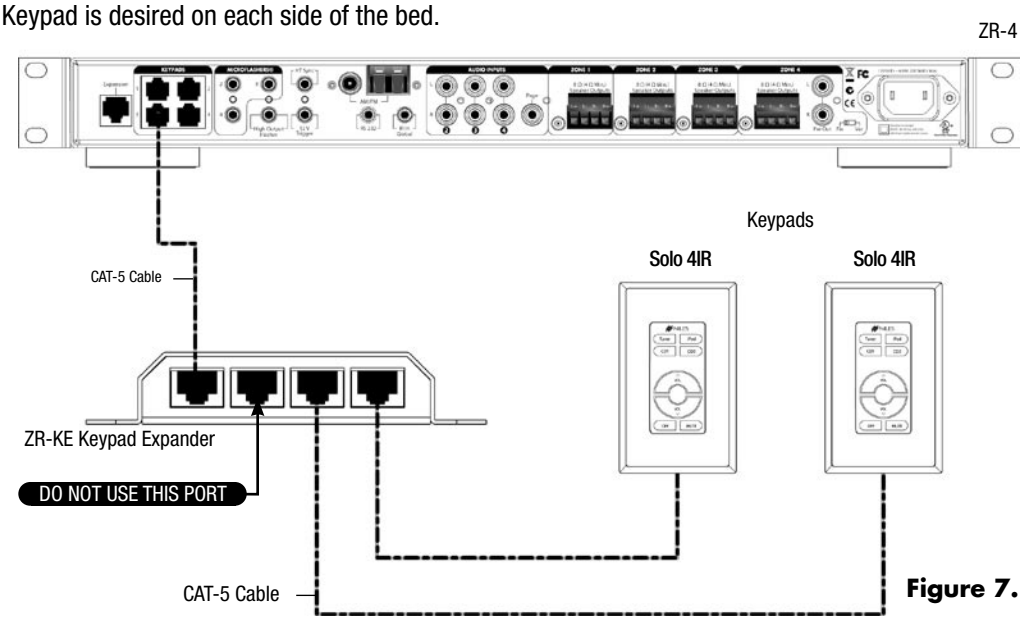


Figure 7. Two Keypads in a Zone

NILES ZR-KE KEYPAD EXPANDER

The ZR-KE Keypad Expander enables the use of two Keypads per zone. The RJ-45 terminated CAT-5 cable from the ZR-4 MultiZone Receiver's Keypad Port is connected to the input of the ZR-KE. The two keypads are then connected to the outputs on the ZR-KE with CAT-5 cable.

NOTE: THE ZR-KE HAS THREE OUTPUTS, BUT ONLY TWO CAN BE USED FOR KEYPADS WITH THE ZR-4 MULTIZONE RECEIVER. ONE ZR-KE CAN BE USED FOR EACH ZONE, INCLUDING ADDITIONAL SLAVE ZONES WHEN A SECOND ZR-4 MULTIZONE RECEIVER KIT IS USED TO EXPAND THE SYSTEM TO EIGHT ZONES.

SYSTEM CONFIGURATION 6

ZR-4 MULTIZONE RECEIVER WITH AN EXTERNAL AMPLIFIER IN ZONE 4

The ZR-4 MultiZone Receiver is designed to accommodate a separate amplifier to drive Zone 4's loudspeakers.

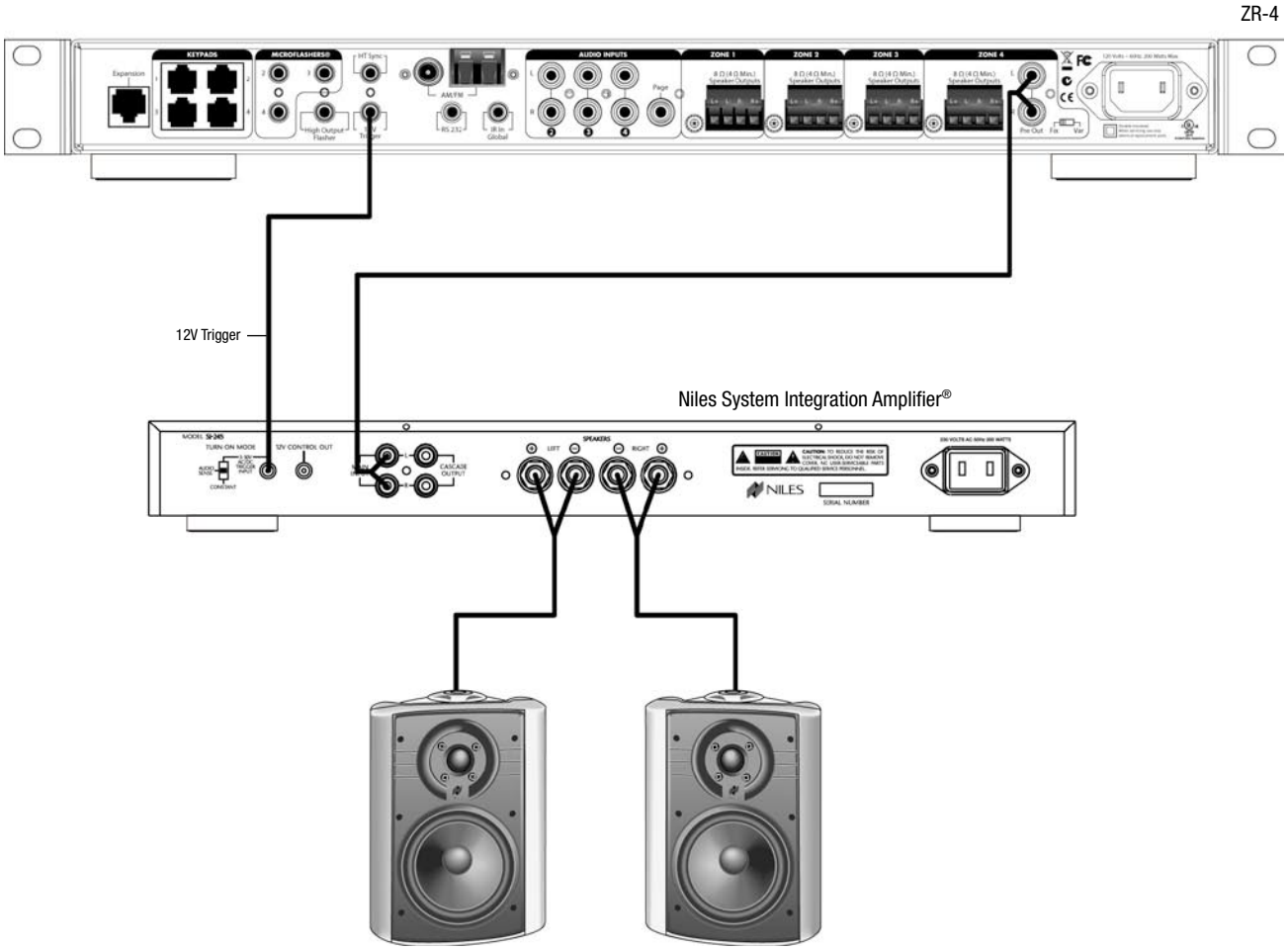


Figure 8. Connecting an External Amplifier to Zone 4

PRE-AMP OUTPUT

Zone 4 is equipped with a pre-amp output to connect an external power amplifier. If one room in the house is particularly large or requires substantially higher volume levels, it is advised to assign this room to Zone 4 and connect a Niles System Integration Amplifier® to provide more powerful amplification to the room's loudspeakers. The pre-amp output can be switched between a fixed level or variable level.

12V TRIGGER OUTPUT

When any zone is activated, the ZR-4's Global 12V Control Output will send out a constant 12V DC trigger signal. This can be used to automatically switch on an amplifier equipped with a 12V trigger turn-on, such as a Niles System Integration Amplifier. Alternatively, the 12V trigger from the keypad can be used to turn-on the amplifier only when zone 4 is active.

SYSTEM CONFIGURATION 7

ZR-4 MULTIZONE RECEIVER WITH SYSTEM PAGING FROM EXTERNAL TELEPHONE SYSTEM AND/OR DOORBELL

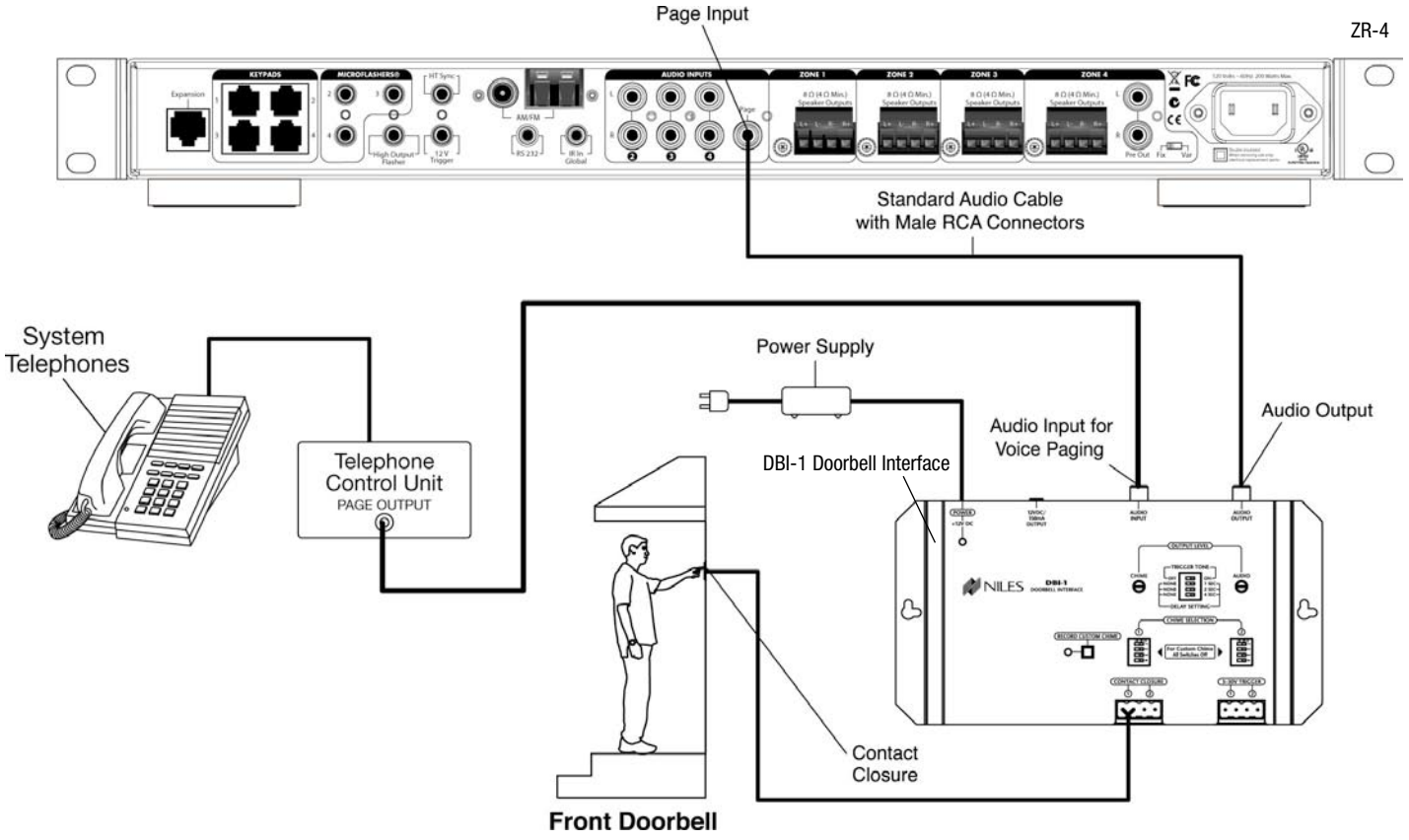


Figure 9. ZR-4 MultiZone Receiver with system paging from a telephone system and a doorbell

TELEPHONE AND/OR DOORBELL PAGING

The Paging input on the rear panel of the ZR-4 Receiver provides a connection for voice paging and/or doorbell sounds through the speakers in the listening zones. The optional Niles DBI-1 Doorbell Interface (FG01034) provides realistic doorbell chimes throughout the house and includes a connection for the output signal of telephone or intercom systems. By default, all zones respond to a page. The system can be configured so only specific zones respond to paging (see **CONFIGURATION** on **page 18** for details).

SYSTEM INSTALLATION

PREPARATION

Before you begin, make sure the audio cables, speaker cables, CAT-5 wiring, MicroFlasher wires and the power supply cable are of sufficient length to reach the ZR-4 MultiZone Receiver. Label each cable describing where each cable originates (rather than to which terminal on the ZR-4 it connects).

ATTACH THE RACK MOUNT EARS (IF NEEDED)

If the ZR-4 MultiZone Receiver is to be installed into a professional equipment rack, attach the supplied rack mount ears with the included screws. The four non-slip plastic feet are removable, if necessary. A 1U vent panel above and below the ZR-4 MultiZone Receiver are required to provide maximum cooling.

CONNECT THE AUDIO INPUT CABLES

Connect each source's audio output cables to the corresponding audio input connection of the ZR-4 MultiZone Receiver. When making the connections be sure that the two audio cable RCA jacks are fully seated and that the proper color code is followed (white=left ch; red=right ch). The audio inputs are labeled 2,3, and 4. Input 1 is the built-in AM/FM tuner.

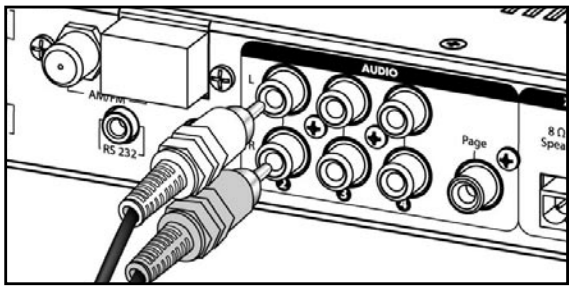


Figure 10. Proper connection of audio input cables

CONNECT THE PAGING CABLE

The Page input on the rear panel of the ZR-4 MultiZone Receiver provides a connection for the paging out signal of telephone or intercom systems for voice paging through the speakers in the listening zones. By default, all zones will respond to a page when it is input to the paging port. If there are zones that the end-user does not desire to receive a page, they can be programmed out. See **Page 19** for details.

The Page input can also be used to distribute doorbell chimes throughout the house. An accessory, the Niles **DBI-1** (FG01034), is required. For installation details, see the **DBI-1 Installation & Operation Guide**, available for download at **www.nilesaudio.com**.

CONNECT THE SPEAKER WIRES

CAUTION! ALL SPEAKER WIRE CONNECTIONS MUST BE MADE WITH THE RECEIVER OFF.

There are four sets of removable connectors, one for each zone. The connectors accept speaker wires up to 16 AWG in size. Each removable connector has four screw-down terminals for speaker wire: One positive (+) and one negative (-) for each speaker. Unscrew the terminal, insert the appropriate bare speaker wire, then tighten firmly.
(See **Figure 11**).

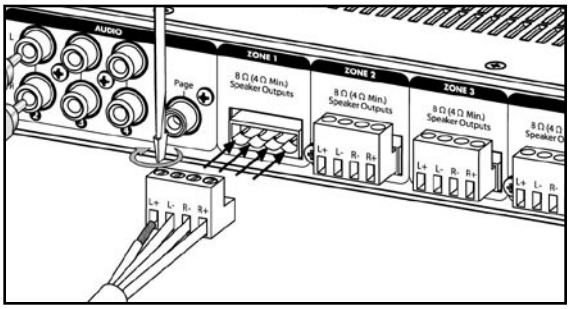


Figure 11. Connecting Loudspeakers to ZR-4 MultiZone Receiver

CONNECT ZONE 4 PRE-AMP OUTPUTS

If a zone is a particularly large area, or if high volume levels are required, it is suggested that Zone four be augmented by an additional stereo power amplifier, such as a Niles System Integration Amplifier, connected to the Pre Out with a stereo RCA audio cable of sufficient length. The Zone four Pre Out is selectable for variable or fixed output. The Global 12V output can be used to trigger the System Integration Amplifier's power.

CONNECT THE IR FLASHERS

MICROFLASHER® TO THE FLASHER OUTPUTS

The mini-plug of each included Niles MicroFlasher connects into the Flasher Outputs 2-4. The MicroFlasher portion is placed directly over the IR sensor of the corresponding source component (Source 2 for Flasher 2, Source 3 for Flasher 3, Source 4 for Flasher 4) and adheres with the included adhesive. Remove the protective paper cover to expose the adhesive and attach to the source component.

HIGH-OUTPUT FLASHER TO THE HIGH OUTPUT FLASHER PORT

The mini-plug of an optional Niles High Output Flasher, Model IRB-1 (FG01023), connects to the High Output Flasher Port. The IRB-1 is strategically positioned to provide IR transmission to all source components and adheres to a shelf with an included Velcro® mounting system.

CAUTION: DO NOT CONNECT MICROFLASHERS TO THIS PORT. THE HIGH OUTPUT FLASHER PORT WILL DAMAGE MICROFLASHERS

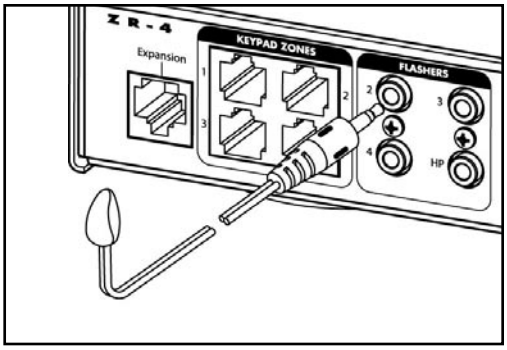


Figure 12. Connecting IR Flashers to ZR-4 MultiZone Receiver

CONNECT THE KEYPAD CAT-5 CABLES

Each Keypad controls a specific zone. The RJ-45 terminated CAT-5 cable that runs to each keypad is connected to the ZR-4 MultiZone Receiver's keypad connectors labeled: ZONE 1, ZONE 2, ZONE 3, and ZONE 4. The zone that each keypad is connected to defines the number of that zone. For example: the keypad that is connected to ZONE 1 will always be defined as ZONE 1. All RJ-45 terminated CAT-5 cable must utilize the T568A wiring convention.

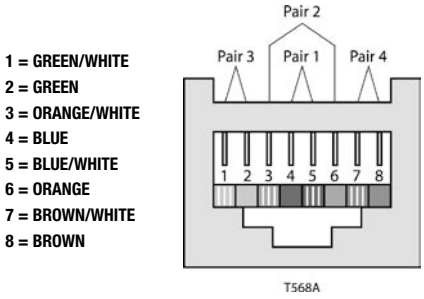


Figure 13. T568A wire termination

CONNECT THE SLAVE ZR-4 MULTIZONE RECEIVER CHASSIS

Two ZR-4 MultiZone Receiver Kits can be combined to create a four-source, eight-zone system. The Expansion Port connects the two receivers by a RJ-45 terminated CAT-5 cable using the T568A wiring convention. One receiver must be designated as the Master, the other as the Slave *(see configuration **page 8**).* All flashers for source control must be connected to the Master and not to the Slave. IR from the keypads connected to the Slave chassis will be routed to the Master chassis via the expansion connection port.

CONNECT THE AM AND FM ANTENNAS

When using two ZR-4 MultiZone Receiver kits to create an 8-zone system, antennas must be connected to both ZR-4 MultiZone Receivers.

FM DIPOLE ANTENNA

The included FM Dipole Antenna connects to the female 75 ohm coaxial connector. The antenna is then positioned and mounted for best reception.

AM LOOP ANTENNA

The included AM Loop Antenna connects with its bare-wire ends to the spring-loaded terminals labeled AM and GND. The antenna is then positioned and mounted for best reception.

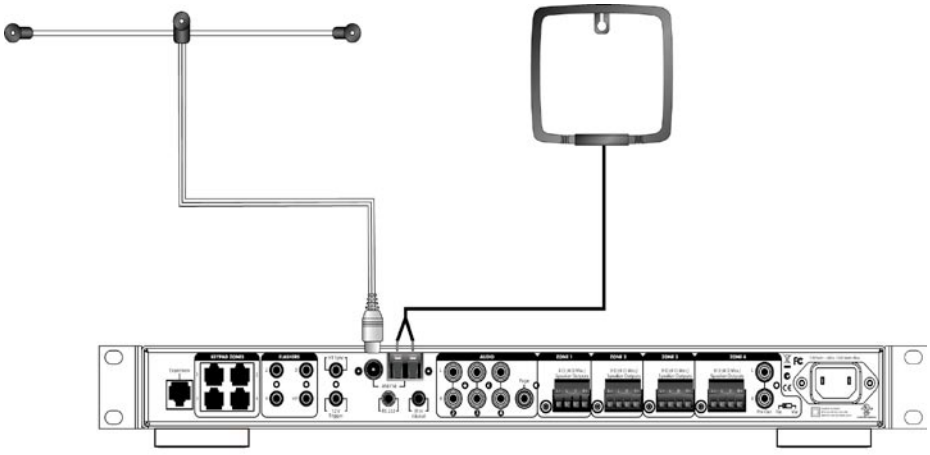


Figure 14. Connecting AM/FM Antennas to ZR-4 MultiZone Receiver

CONNECT THE GLOBAL 12V OUT

The Global 12V Out triggers an external device whenever a Zone is turned on. A common use would be to turn on a 12V trigger-equipped Niles System Integration Amplifier connected to the Zone four pre-out jacks. The Global 12V out can also be used to trigger a Niles AC-3 Voltage-Triggered AC Power Strip to automate power turn-on and turn-off of connected sources.

CONNECT THE HT (HOME THEATER) SYNC IF NEEDED

If the ZR-4 MultiZone Receiver Kit is going to share audio source components with a separate home theater system, it is important to use the HT (home theater) sync connector. A voltage signal from the home theater receiver allows the ZR-4 MultiZone Receiver to know that the home theater receiver is on and that the ZR-4 MultiZone Receiver should not go into standby, even if all of its zones are shut off, until this voltage signal is no longer present. Use a 3.5mm tip-positive connector (FG00933). One end connects to the HT Sync port on the ZR-4 MultiZone Receiver, the other end to a trigger output (or similar) on the home theater receiver. If a trigger output is not available on the home theater receiver, an alternate is the Niles CS12V Current Sensing 12V Trigger (FG01173). When the power cord of the home theater receiver is connected to the current sensing outlet on the CS12V and the receiver is turned on, the CS12V sees the additional current draw and sends out a 12V trigger via the 3.5mm to 3.5mm cable.

CONNECT EXTERNAL CONTROL IF NEEDED

The ZR-4 MultiZone Receiver can be externally controlled in two ways: RS-232C and IR.

RS-232C

The ZR-4 MultiZone Receiver is equipped with RS-232C serial communication. This allows the receiver to be monitored and controlled by an external control system such as the Niles iC2, or similar control and automation products. The RS-232C jack uses a 3.5mm stereo plug with standard TRS (Tip, Ring, Sleeve) configuration of Transmit, Receive, and Ground. This may require the installer to custom-make the RS-232C control cable. Most RS-232C control systems use a male DB9 connector, a female DB9 connector, or a 3.5mm stereo jack. Manufacturers can provide a protocol document (usually from their Tech Support Department), which will have the necessary information to custom build the RS-232C control cable. (**Figure 15**)

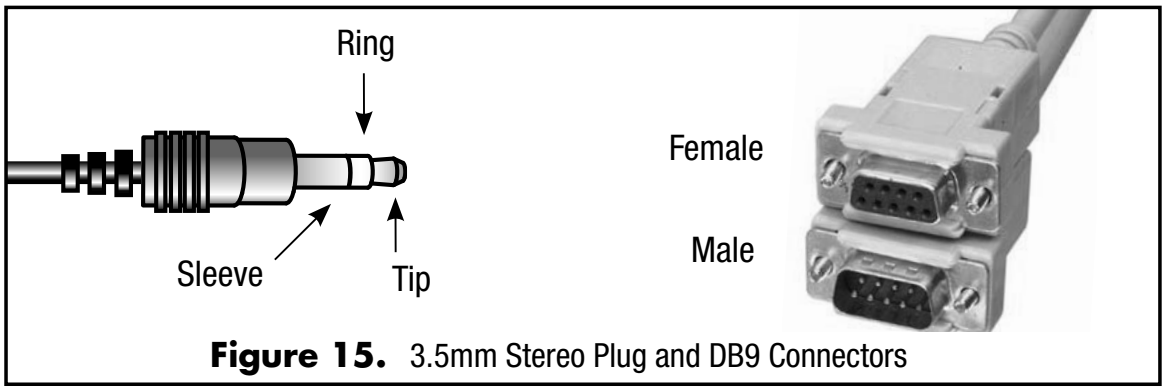


Figure 15. 3.5mm Stereo Plug and DB9 Connectors

IR IN

The ZR-4 MultiZone Receiver can also be controlled by a programmable/learning IR remote control system. Use the IR control port to connect a Niles IR Sensor to receive the IR signals from the IR remote control.

CONNECT THE MAIN POWER CABLE

The ZR-4 MultiZone Receiver is equipped with an IEC Power Receptacle. A supplied, removable power cable is attached to this two-pin Power Receptacle and then plugged into an AC wall outlet. This is the AC power disconnect for the ZR-4 MultiZone Receiver and should remain accessible during use. A surge suppression device from a top-quality manufacturer such as Panamax® is recommended to protect the equipment from potentially harmful power surges and spikes.

KEYPAD INSTALLATION

The **ZR-4 MultiZone Receiver Kit** comes with four weather-resistant, wall-mount Keypads, one for each zone. A zone is an area or room of the house where music is desired, such as a living room, bedroom, kitchen, etc. Each zone is independent and can play any connected music source with its own volume and tone adjustments. Up to two keypads can be installed in each zone (requires ZR-KE Keypad Expander and an additional Solo-4 IR Keypad, both sold separately).

THE SOLO-4 IR KEYPAD MUST BE INSTALLED IN AN OUTLET BOX LISTED IN ACCORDANCE WITH THE NEC.

CHOOSE A MOUNTING LOCATION

Convenient keypad mounting locations include:

1. Near a doorway
2. Near a desk
3. At your bedside
4. Close to a telephone
5. Near other wall-mounted controls

INSTALL THE MASTER KEY LABELS

Solo®-4 IR Keypads are shipped with the Master Keys uninstalled. 14 Master Keys are included (seven different labels for the left side, seven different labels for the right side). To install the Master Keys:

1. Remove a Master Key from the "tree". Note the difference between the left and right side versions
2. Insert the Master Key in the appropriate hole over the elastomer until you can feel it "click" when it is pushed in

NOTE: MASTER KEY LABELS CAN BE INSTALLED WHILE THE KEYPAD IS INSTALLED ON THE WALL. THE DECORA INSERT DOES NOT HAVE TO BE REMOVED.

CHANGING THE KEYPAD COLOR

The standard keypad color is White. Different colors are available to replace the Decora® insert and Master Keys: A complete list of available colors can be found at www.nilesaudio.com. To replace the Decora insert and Master Keys:

1. With a small screwdriver or knife, gently pry off the top of the Decora insert (two plastic tabs hold it in place). Remove the bottom of the Decora insert in the same manner. The Master Keys will come off with the Decora insert.
2. To reinstall, snap the new Decora insert in place, making certain that the buttons are seated over the elastomer.
3. Replace the Master Keys by inserting them in the appropriate holes over the elastomer until you can feel them "click" when pushed in.

ADDITIONAL LABELING OPTIONS

If needed, Master Key labeling kits are available with 21 different labels. These kits come in several colors more information can be found online at www.nilesaudio.com.

CONNECT CAT-5 CABLE TO THE KEYPAD

Each Keypad connects to the ZR-4 MultiZone Receiver by a "home run" of CAT-5 cable with RJ-45 connectors utilizing the T-568A wiring convention. The CAT-5 cable connects to the "System" Terminal on the back of the Keypad.

(CONTINUED ON NEXT PAGE)

CONFIGURING THE MULTIZONE RECEIVER

The Niles ZR-4 MultiZone Receiver Kit is simple to configure. Configuration is accomplished using the front panel buttons and LCD display. No computer is necessary.

NOTE: THE MASTER UNIT, THE SLAVE UNIT (IF APPLICABLE), ALL SOURCE COMPONENTS, KEYPADS AND SPEAKERS MUST BE CONNECTED PRIOR TO PERFORMING ANY OF THESE OPERATIONS.

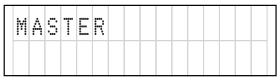
MAIN POWER

The ZR-4 MultiZone Receiver has a mechanical latching main power switch on its front panel. The ZR-4 MultiZone Receiver and its accessories will not work until it has been engaged. Press in the main power switch to the on position. It will glow white to indicate that it is in standby and ready to operate.

CONFIGURATION MODE

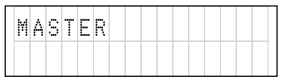
To enter configuration mode, power down the ZR-4 MultiZone Receiver(s) by disengaging the mechanical power switch for five seconds and then power it up again while simultaneously holding down the **Band** and **Set** keys. Release the **Band** and **Set** Keys when **[RELEASE BUTTONS TO CONTINUE]** appears on the display.

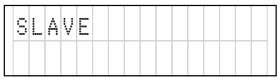
[MASTER] will be on the display. If you have two ZR-4 Receivers, repeat the above step on the Slave. **[MASTER]** will be on both displays.



MASTER/SLAVE

On the ZR-4 that you wish to configure to be the Slave, press the **Set** key. **[MASTER]** will change to **[SLAVE]** on that unit while the other will remain **[MASTER]**.





To continue to the next system configuration ***Zone Linking***, press the **Band** key once. To save your settings and to exit the configuration mode, simultaneously hold down the **Band** and **Set** keys. **[RELEASE BUTTONS TO CONTINUE]** appears on the display. You will return to the source that was playing before entering the configuration mode.

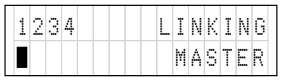
NOTE: ALL EXTERNAL IR OR RS-232C CONTROL MUST BE MADE TO THE MASTER ONLY AND NOT TO THE SLAVE. THE COMMANDS NECESSARY TO CONTROL THE SLAVE WILL BE RELAYED TO IT THROUGH THE EXPANSION CONNECTION. ALL MICROFLASHERS FOR SOURCE CONTROL MUST BE CONNECTED TO THE MASTER AND NOT TO THE SLAVE. IR FROM THE KEYPADS CONNECTED TO THE SLAVE CHASSIS WILL BE ROUTED TO THE MASTER CHASSIS VIA THE EXPANSION CONNECTION PORT.

ZONE LINKING

This feature allows two or more zones to always play the same source at the same time. Linked zones will turn-off and turn-on to the same source in unison. Volume, bass and treble will remain independent for each zone.

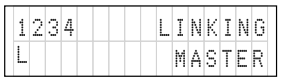
NOTE: ONLY ONE ZONE LINKING GROUP MAY BE CREATED PER UNIT (ONE FOR THE MASTER, ONE FOR THE SLAVE).

While in the configuration mode (see above). Press the **Band** Key until **[1234 LINKING MASTER]** shows in the display.

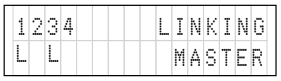


A cursor will be blinking under the number "**1**."

Press the **+** key to toggle between the zones. The cursor blinks under the zone number when it is highlighted. Press the **Set** key to make a highlighted zone a linked zone. **[L]** will appear below that zone number.



Once you reach "**4**" it will toggle back to "**1**" on the Slave. Once you have reached "**4**" on the Slave it will toggle back to "**1**" on the Master.



Repeat these steps until all of the desired zones have been linked.

To continue to the next system configuration ***Paging***, press the **Band** key once. To save your settings and to exit the configuration mode, simultaneously hold down the **Band** and **Set** keys. **[RELEASE BUTTONS TO CONTINUE]** appears on the display. You will return to the source that was playing before entering the configuration mode.

PAGING

By default, all zones will respond to a page when it is input to the paging port. When a signal is detected, the selected zones will switch

to that input until a signal is no longer detected. The paging input will play in all zones at the preset volume. If there are zones that the end-user does not desire to receive a page, follow these steps.

While in the configuration mode (see above). Press the Band Key until **[1234 PAGE MASTER]** shows in the display. A cursor will be blinking under the number "**1**."

Press the **+** key to toggle between the zones to highlight a paging zone. The cursor under the zone number blinks when a zone is highlighted.

Press the **Set** key to deselect a highlighted zone as a paging zone. A **[P]** will disappear below that zone number.

Once you reach "**4**" it will toggle back to "**1**" on the Slave. Once you have reached "**4**" on the Slave it will toggle back to "**1**" on the Master.

Repeat these steps until all of the desired zones have been set for your desired paging operation.

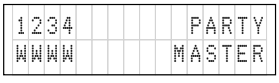
To continue to the next system configuration ***Party or Whole House Mode***, press the **Band** key once. To save your settings and to exit the configuration mode, simultaneously hold down the **Band** and **Set** keys. **[RELEASE BUTTONS TO CONTINUE]** appears on the display. You will return to the source that was playing before entering the configuration mode.

PARTY OR WHOLE HOUSE MODE

This feature lets the end-user press-and-hold any **Master** Key for three seconds to turn On the entire house to the same source for a party. It also allows for the press-and-hold of the **Off** key to turn Off the entire system from one zone keypad without the need to walk around to every keypad to do so. By default all zones will respond to Party mode. If there are zones that the end-user does not want to turn on when a press-and-hold is initiated, follow these steps.

NOTE: THIS FEATURE ONLY DEACTIVATES THE PRESS-AND-HOLD ON AND NOT THE OFF. THE OFF IS ALWAYS AVAILABLE AT ANY ZONE REGARDLESS OF ITS SETTING.

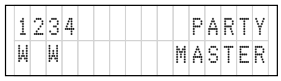
While in the configuration mode, (see above) press the **Band** Key until **[1234 PARTY MASTER]** shows in the display. A cursor will be blinking under the number "**1**."



Press the **+** to toggle between the zones. The cursor under the zone number blinks when a zone is highlighted.

Press the **Set** key to deselect a highlighted zone as a Party zone. A **[W]** will disappear below that zone number.

Once you reach "**4**" it will toggle back to "**1**" on the Slave. Once you have reached "**4**" on the Slave it will toggle back to "**1**" on the Master.



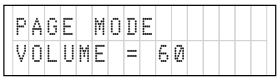
Repeat these steps until all of the desired zones have been set for your desired Party operation.

To continue to the next system configuration ***Page Mode On Volume,*** press the **Band** key once. To save your settings and to exit the configuration mode, simultaneously hold down the Band and Set keys. **[RELEASE BUTTONS TO CONTINUE]** appears on the display. You will return to the source that was playing before entering the configuration mode.

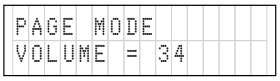
PAGE MODE VOLUME

The paging volume level for all selected zones is adjustable.

While in the configuration mode, (see above) press the **Band** Key until **[PAGE MODE VOLUME = 60]** shows in the display.



Press the **+** key to increase the preset volume. Press the **–** key to decrease the preset volume. The factory default setting is 60.



The volume range is from 0 to 99. Hold the **Set** key 2 seconds to save the new page volume.

To continue to the next system configuration ***Default Turn On Volume***, press the **Band** key once. To save your settings and to exit the configuration mode, simultaneously hold down the **Band** and **Set** keys. **[RELEASE BUTTONS TO CONTINUE]** appears on the display.

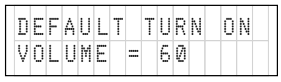
You will return to the source that was playing before entering the configuration mode.

(CONTINUED ON NEXT PAGE)

DEFAULT TURN-ON VOLUME

The turn-on volume level for the system is adjustable. Since the turn-on volume level will be the same for all zones, we suggest setting a comfortable listening level in the room that will be used most frequently, or in the smallest room.

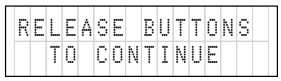
While in the configuration mode, (see above) press the **Band** Key until **[DEFAULT TURN ON VOLUME = 60]** shows in the display.



Press the **+** key to increase the preset volume. Press the **–** key to decrease the preset volume. The factory default setting is 60.

The volume range is from 0 to 99. Hold **Set** key 2 seconds to save new turn-on volume.

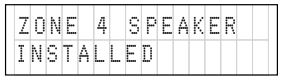
To continue to the next system configuration ***Zone 4 Speakers***, press the **Band** key once. To save your settings and to exit the configuration mode, simultaneously hold down the **Band** and **Set** keys. **[RELEASE BUTTONS TO CONTINUE]** appears on the display. You will return to the source that was playing before entering the configuration mode.



ZONE 4 SPEAKERS

The ZR-4 MultiZone Receiver is equipped with Zone 4 pre-amplifier output that enables the use of a separate outboard power amplifier. The ZR-4's built-in Zone 4 amplifier is still operational but requires this configuration adjustment to ensure the best sound quality if speakers are connected to it.

While in the configuration mode, (see above) press the **Band** Key until **[ZONE 4 SPEAKER INSTALLED]** shows in the display.



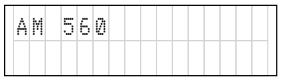
[ZONE 4 SPEAKER INSTALLED] is the default setting. If speakers are not connected to Zone 4's built-in amplifier, press the **Set** key and the display will show **[ZONE 4 SPEAKER NOT INSTALLED]**.

To return back to the first system configuration ***Master Slave***, press the **Band** key once. To save your settings and to exit the configuration mode, simultaneously hold down the **Band** and **Set** keys. **[RELEASE BUTTONS TO CONTINUE]** appears on the display. You will return to the source that was playing before entering the configuration mode.

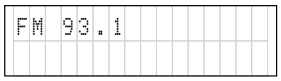
TUNER SETUP

The tuner can store up to 20 presets of any combination of **AM** or **FM** stations.

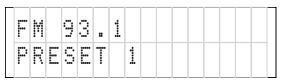
Press the **Band** key to choose between **AM** or **FM**. The display will show AM or FM to indicate the current band along with the current station **[AM 560]**.



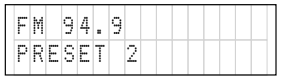
Press the **+** or **–** key to tune to the desired station. The display will cycle through the frequencies while the tuner searches for the station **[FM 93.1]**. Once at the desired station as shown in the



display, press the **Set** key and the station will be stored in the next available preset position. The display will show the preset number as **[PRESET 1]**.



Repeat these steps until all desired stations are preset or the available twenty presets are filled **[PRESET 2]**.



When entering a preset after all twenty have been entered the process will start over by replacing the first preset with the new one being entered.

Presets are erased only by entering new presets.

NOTE: WHEN USING TWO ZR-4 MultiZone Receivers: TO CREATE AN EIGHT ZONE SYSTEM, PRESETS MUST BE CONFIGURED ON BOTH TUNERS. ZONES 1-4 WILL UTILIZE THE TUNER IN THE MASTER UNIT AND ZONES 5-8 WILL UTILIZE THE TUNER IN THE SLAVE UNIT. THEREFORE, TWO DIFFERENT STATIONS COULD BE PLAYING IN DIFFERENT ZONES AT THE SAME TIME (i.e. ZONE 1 AND ZONE 5 COULD EACH BE LISTENING TO DIFFERENT STATIONS, WHEN ACTIVATING PARTY MODE, EACH TUNER WILL TURN ON TO THE LAST USED STATION).

CONFIGURING THE ZONE

BASS ADJUSTMENT

A source should be playing through the speakers in the zone. To set the bass adjustment at a zone keypad press and hold the **Mute** and bottom right **Master** key simultaneously for three seconds. The bottom right **Master** key LED will be blinking.

Press the **Volume +** key to increase the bass or the **Volume –** key to decrease the bass.

To reset the bass to its default flat setting press-and-hold the **Volume +** and **Volume –** keys simultaneously for two seconds.

To save your changes and exit configuration mode simultaneously press and hold the **Mute** and bottom right **Master** keys for three seconds. The keypad will return to its previous state.

Repeat these steps for the remaining zone keypads.

TREBLE ADJUSTMENT

A source should be playing through the speakers in the zone. To set the treble adjustment simultaneously press-and-hold the **Mute** and bottom left **Master** key on a zone's keypad for three seconds. The bottom left **Master** key LED will be blinking.

Press the **Volume +** key to increase the treble or the **Volume –** key to decrease the treble.

To reset the treble to its default flat setting press-and-hold the **Volume +** and **Volume –** keys simultaneously for two seconds.

To save your changes and exit configuration mode simultaneously press and hold the **Mute** and bottom left **Master** key for three seconds. The keypad will return to its previous state.

Repeat these steps for the remaining zone, keypads.

IR SENSOR ON/OFF

By factory default the IR sensor is set to the on position.

To turn the keypad's internal IR sensor on or off simultaneously press-and-hold the **Mute** and upper right **Master** key for three seconds. The upper right **Master** key LED will be blinking.

Press the **Volume +** key to turn it on. Press the **Volume –** key to turn it off.

To save your changes and exit configuration mode simultaneously press-and-hold the **Mute** and upper right **Master** key for three seconds. The keypad will return to its previous state.

Repeat these steps for the remaining zone keypads.

VARIABLE LOUDNESS ON/OFF

By factory default variable loudness is set to the Off position.

To turn the zone's variable loudness on or off simultaneously press-and-hold the **Mute** and upper left **Master** key for three seconds. The upper left **Master** key LED will be blinking.

Press the **Volume +** key to turn it on. Press the **Volume –** key to turn it off.

To save your changes and exit configuration mode simultaneously press-and-hold the **Mute** and upper left **Master** key for three seconds. The keypad will return to its previous state.

Repeat these steps for the remaining zone keypads.

THE HAND-HELD REMOTE

INSTALLING BATTERIES

Your Niles **R-6L Hand-Held Learning Remote Control** requires 2 "AA" batteries (included).

BATTERY USE AND SAFETY

- Use only fresh batteries of the required size and recommended type
- Do not mix old and new batteries, different types of batteries (standard, alkaline, or rechargeable), or rechargeable batteries of different capacities
- If you do not plan to use the remote for an extended period, remove the batteries. They can leak chemicals that can destroy electronic parts

WARNING: DISPOSE OF OLD BATTERIES PROMPTLY AND PROPERLY. DO NOT BURN OR BURY THEM.

TO INSTALL BATTERIES:

1. Open the battery compartment cover (located on the back of the remote).
2. Place the "AA" batteries in the compartment and match the + and – polarity symbols inside.
3. Replace the cover.

NOTE: WHEN THE BATTERY VOLTAGE IS LOW, THE SOURCE KEY LED WILL BLINK 5 TIMES AFTER A KEYPRESS.

(CONTINUED ON NEXT PAGE)

CONFIGURING THE HAND-HELD REMOTE

To be certain that the remote functions properly, all IR commands for source devices connected to inputs **2**, **3**, and **4** must be learned from the original device remote. A total of 42 to 75 commands can be stored, depending on the size of the learned commands.

Commands for **TV** and **AUX** devices are implemented using five-digit codes to identify a complete command set for a device. The codes can be found in the **"Manufacturer's Codes"** list provided. Codes implemented via the five-digit code method do not consume memory (and therefore do not reduce total capacity) used for learning codes.

CONFIGURE TV AND AUX

Before proceeding, find the codes for the devices to be controlled in the provided list ("Manufacturer's Codes"). Write down or highlight these codes for easy references, then perform the following steps:

1. Turn on the device (for example: DVD player) and, if needed, load media (for example: a DVD).
2. Press the ***Source key TV*** or ***Aux*** on the remote that you wish to program.
3. Press and hold ***SETUP*** until the *Selected Source Key* blinks twice, then release.
4. Enter the first five-digit code for the device and brand that you wish to program. The Source Key LED blinks once as each digit is entered. If the code is valid, the Source Key LED blinks twice.

   NOTE: IF THE SOURCE KEY LED DOES NOT BLINK TWICE, REPEAT STEPS 2 TO 4 AND TRY ENTERING THE CODE AGAIN.
5. Aim the remote at the device and press ***POWER OFF***. The device should turn Off. If it does not, repeat ***steps 3–5***, trying each code for your brand until you find one that works. If you cannot find a code that works, see "***SEARCHING FOR YOUR CODE***".
6. Repeat ***steps 1 to 5*** for the other device you want to control.

SEARCHING FOR YOUR CODE

If your device does not respond to the remote after trying all codes listed for your brand, or if your brand is not listed, try searching for your code:

1. Turn on the device you wish to control.
2. Press a Source key once.
3. Press and hold ***SETUP*** until the Selected Source Key blinks twice, then release.
4. Enter ***9 9 1***, then the device group number (see table below). The LED blinks twice.

TABLE:

0	Cable (cable converters, video accessories, satellite receivers)
1	TV (TVs)
2	VCR (VCRs, DVD players)
3	Audio (audio amplifiers, audio amp/tuners, CD players)

5. Aim the remote at the device and press Power Off. The remote sends IR codes from its library to the selected device, starting with the most popular code first. If the device responds, go to step 7.
6. If the device does not respond, press ***CH+*** and the remote will test the next code for that device type. Continue to press ***CH+*** until the device turns ***Off***.

   NOTE: PRESS CH- TO TRY THE PREVIOUS CODE.
7. Now that you have found the correct code, press ***SETUP*** to save the code that worked for your device. The Source Key LED will blink twice to indicate that the code has been saved. To search for other device codes, repeat ***steps 1*** to ***5***.

CHECKING THE CODES

If you have set up the remote using the procedure in "**SEARCHING FOR YOUR CODE**", you may need to find out which five-digit code is operating your equipment. For example, to find out which code is assigned to your TV:

1. Press the TV Source Key once.
2. Press and hold ***SETUP*** until the TV Source Key LED blinks twice, then release
3. Enter ***9 9 0***. The TV Source LED blinks twice
4. To view the code for the first digit, press ***1***. Count the Key LED blinks (for example: three blinks = 3), and write down the number.

NOTE: IF A CODE DIGIT IS 0, THE LED DOES NOT BLINK

5. Continue through five digits by pressing 2 for the second digit, 3 for the third, 4 for the fourth and finally 5 for the fifth; counting the TV Source Key LED blinks for each digit.
6. To check for other device codes, repeat ***steps 1—5***, substituting the source key for the device you would like to check

CONFIGURING SOURCES 2,3, AND 4

These source device commands are learned directly from the original device remotes. There are some precautions to be observed:

LEARNING PRECAUTIONS

Your original remote control device must be in working order to learn IR codes properly.

- Learned keys are device specific, so each key can store a unique function for each device
- Do not use the following keys for learning: Source Keys or ***SETUP***.
- Learning capacity is approximately 42 to 75 keys, depending on the code being learned
- Certain device functions cannot be learned, including multi-frequency types, some high frequency ones, and other unusual formats
- For optimum learning, avoid high levels of ambient light such as natural sunlight or energy-efficient fluorescent lights

NOTE: PLEASE HAVE YOUR ORIGINAL REMOTE CONTROLS HANDY BEFORE PROGRAMMING LEARNING

PROGRAMMING A LEARNED KEY

NOTE: IF MORE THAN 10 SECONDS PASS BETWEEN KEY PRESSES, THE REMOTE EXITS PROGRAMMING

1. Place the Niles ***R-6L Hand-Held Learning Remote Control*** head-to-head (about 2" apart) from your original remote control.
2. Locate the key (on your original remote control) that you want the ***R-6L*** to learn.
3. Press the device key for which you wish to learn IR commands.
4. Press and hold ***SETUP*** until the Source Key LED blinks twice, then release.
5. Enter ***9 7 5***. The Source Key LED blinks twice.

   NOTE: IF THE LED DISPLAYS ONE LONG FLASH INSTEAD, YOUR BATTERIES ARE LOW, OR THE R-6L MEMORY IS FULL. IN EITHER CASE, THE REMOTE CANNOT LEARN A NEW KEY.
6. Press the key on the Niles R-6L remote for which you wish to learn a command. The Source Key LED will blink rapidly for three seconds, indicating the remote is ready to learn.
7. On the original device remote, press-and-hold the key to be learned. Continue holding the key on the original remote until the R-6L's Source Key LED blinks twice.

   NOTE: IF THE SOURCE KEY LED DISPLAYS ONE LONG BLINK, A LEARNING ERROR HAS OCCURRED. TRY REPEATING THIS STEP AGAIN UNTIL A SUCCESSFUL CAPTURE IS OBTAINED. IF THE FUNCTION IS STILL NOT CAPTURED, PRESS AND HOLD SETUP TO EXIT PROGRAMMING AND REVIEW THE "LEARNING PRECAUTIONS" ABOVE. IF NEEDED, ALSO SEE "TROUBLESHOOTING". AFTER REVIEW, START PROGRAMMING AGAIN AT STEP 1.
8. Repeat ***steps 6*** through ***7*** for each key to be learned. Once all keys are learned, press-and-hold ***SETUP*** until the Source Key LED blinks twice to save all data learned.

DELETING A SINGLE LEARNED KEY

This process returns a single key to its original programming for the selected device only. Learned programming can also be deleted by teaching a different function to the key (see "**PROGRAMMING A LEARNED KEY**").

NOTE: IF MORE THAN 10 SECONDS PASS BETWEEN KEY PRESSES, THE REMOTE EXITS PROGRAMMING.

1. Press the Source Key for the device for which a learned key is to be deleted.
2. Press-and-hold ***SETUP*** until the Source Key LED blinks twice, then release
3. Enter ***9 7 6***. The Source Key LED blinks twice
4. Press the key containing the learned function to be deleted twice. The Source Key LED blinks twice and the R-6L exits from programming mode.

DELETING ALL LEARNED KEYS FOR A SPECIFIC DEVICE

NOTE: IF MORE THAN 10 SECONDS PASS BETWEEN KEY PRESSES, THE REMOTE EXITS PROGRAMMING.

1. Press-and-hold ***SETUP*** until a Source Key LED blinks twice, then release

2. Press ***9 7 6***. The Source Key LED blinks twice
3. Press a Source key twice (i.e., TV. VCR/DVD, CBL/ SAT, etc.) to clear all the learned keys for that device. The Source Key LED blinks twice and the R-6L exits from programming mode.

RESTORING ALL KEY FUNCTIONS TO FACTORY SETTINGS

1. Press and hold ***SETUP*** until a Source Key LED blinks twice, then release.
2. Enter ***9 8 0***. The LED blinks four times.
3. Press and hold ***SETUP*** until the red LED blinks twice, then release.

PROGRAMMING A SEQUENCE

Your Niles **R-6L Hand-Held Learning Remote Control** includes the ability to program any key (other than the **SETUP** key) with a Sequence function. Each key can be set up to perform a pre-programmed set of sequential commands with the press of one key. A sequence can be used to control a home theater operation, to set a favorite channel, or for other multiple functions you would like to control with one key press. Moreover, each Key can hold a sequence of up to 15 commands.

NOTE: PROGRAMMING A NEW SEQUENCE OVER AN EXISTING ONE ERASES THE ORIGINAL SEQUENCE.

PROGRAMMING A DEVICE-DEPENDENT SEQUENCE

1. Press a Source key.
2. Press and hold ***SETUP*** until the Source key LED blinks twice, then release.
3. Press ***9 7 8***. The Source key LED blinks twice.
4. Press the key to which you wish to assign a sequence.
5. Enter the series of commands (Key Presets) you want the sequence to execute (up to 15 commands).
6. Press and hold ***SETUP*** until the Source Key LED blinks twice, then release.

Now, when you press the sequence key, the remote sends the series of commands you have entered, but only if the device you selected in **step 1** is selected. For example, you could program the sequence key to turn on both your TV and cable box and select a particular channel, but only if TV is selected. If DVD is selected, this key does not execute the sequence you set up for the TV. To clear the sequence, repeat **steps 1-6** above, but do not enter a series of commands at **step 5**.

OPERATING THE ZR-4

PLAY THE AM/FM TUNER

1. Press the ***Tuner*** key on any zone Keypad or the R-6L Remote Control and the zone will turn on to the preset start volume as well as the last selected station.
2. The 12V out on the rear panel of the ZR-4 MultiZone Receiver and the Keypad in that zone will become active.
3. Pressing the ***Tuner*** button will toggle through the preset stations in the ZR-4's memory. If no presets are stored then the tuner will scan to the next station.
4. Additional control over the tuner's functions is available using the R-6L Remote Control.
5. ***Volume +*** and ***Volume –*** will raise and lower the level of sound in the zone.
6. Pressing the ***Off*** key will turn off the zone. The 12V output on the keypad become inactive. The 12V output on the rear panel becomes inactive if all other zones are off.

OPERATING THE ZR-4 MULTIZONE RECEIVER

PLAY SOURCES 2-4

1. Pressing any of these source keys will turn on the zone and allow you to listen to the source connected to that input at the preset start volume.
2. Additional control over the source's functions is available using the R-6L Remote Control.
3. The 12V out on the rear panel of the ZR-4 MultiZone Receiver and the Keypad will become active.
4. Pressing the ***Off*** key will turn off the zone. The 12V output on the rear panel becomes inactive if all other zones are off.

PARTY MODE

1. Pressing-and-holding any of the Source Keys on a Keypad for 3 seconds will initiate the Party Mode. This feature turns all enabled zones on to that source at the programmed party volume level. If the zone is already on, no volume level change will take place. Volume control, bass and treble are still independent in each zone.
2. The 12V out on the rear panel of the ZR-4 MultiZone Receiver and the enabled Keypads will become active.
3. Pressing and holding the ***Off*** button for 3 seconds in any zone will turn off all zones. All 12V outputs become inactive.

TROUBLESHOOTING

PROBLEM:

1. Front panel DISPLAY blinks: THERMAL WARNING.

If the ZR-4 MultiZone Receiver has an inappropriate speaker impedance load or inadequate ventilation, the system will continue to work, but with a warning that a fault needs to be corrected. Other fault indicators include: blinking front panel zone LED(s) corresponding to the faulted zone(s) and blinking source and mute keys on the keypads.

SOLUTION:

- *Check that the speaker impedance in all zones is not below 4 ohms per channel. If four speakers are to be connected in a zone, they must be 8 ohm speakers connected in parallel.*
- *Check to make sure there is adequate space (see **page 14**) above the ventilation holes on the top of the ZR-4 MultiZone Receiver. A Niles FM-1 (FG01215) or FM-1R (FG01214) System Cooling Module may be necessary in installations where ventilation is limited.*

PROBLEM:

2. No sound (All Zones).

Front panel DISPLAY blinks: THERMAL PROTECTION.

If the ZR-4 MultiZone Receiver has an inappropriate speaker impedance load or inadequate ventilation, eventually the entire system will turn off. Other fault indicators include: a blinking front panel zone LED(s) corresponding to the faulted zone(s) and blinking source and mute keys on the keypads.

SOLUTION:

- *Check that the speaker impedance in all zones is not below 4 ohms per channel. If four speakers are to be connected in a zone, they must be 8 ohm speakers connected in parallel.*
- *Check to make sure there is plenty of space above the ventilation holes on the top of the ZR-4 MultiZone Receiver. A Niles FM-1 (FG01215) or FM-1R (FG01214) System Cooling Module may be necessary in installations where ventilation is limited.*

PROBLEM:

3a. No sound from both channels (One or More Zones).

Front panel DISPLAY blinks: ZONE (X) LSPKR SHORT or ZONE (X) RSPKR SHORT.

3b. Sound from only one channel (One or More Zones).

Front panel DISPLAY blinks: ZONE (X) LSPKR OK or ZONE (X) RSPKR SHORT.

If a speaker wire has a short circuit, the shorted channel(s) of the ZR-4 MultiZone Receiver will shut down. Other fault indicators include: blinking front panel zone LED(s) corresponding to the faulted zone(s) and blinking source and mute keys on the keypads.

SOLUTION:

- *Turn the entire system off using the main power switch on the front of the ZR-4 MultiZone Receiver.*
- *Check for shorts and repair/ replace the speaker wire.*
- *Turn the system on using the main power switch.*

PROBLEM:

4. No sound (One or More Zones).

Front panel DISPLAY blinks: AMPLIFIER FAILURE.

The output chip has acted to protect itself from potential damage. Other fault indicators include: blinking front panel zone LED(s) and blinking source and mute keys on the keypads.

SOLUTION:

- *Call Niles Tech Support*

PROBLEM:

5. No sound (All Zones).

Front panel DISPLAY blinks: POWER FAILURE.

The output chip has acted to protect itself from potential damage. Other fault indicators include: a blinking front panel zone LEDs and blinking source and mute keys on the keypads.

(CONTINUED ON NEXT PAGE)

TROUBLESHOOTING *continued*

SOLUTION:

- *Call Niles Tech Support*

PROBLEM:

6. Poor or no radio reception

SOLUTION:

- *Check the receiver's back panel to see if the FM dipole and AM loop antennas are connected. It may be necessary to reposition them to optimize reception.*

PROBLEM:

7. Keypad does not function

SOLUTION:

- *Make sure that the CAT-5 cable is terminated using T568A wiring convention. (See **Figure 2**)*
- *Check that the RJ-45 connector is firmly seated in the back of the keypad*

PROBLEM:

8. No source control

SOLUTION:

- *The infrared MicroFlasher® is not connected properly to the back of the receiver*
- *The infrared MicroFlasher® is not affixed properly to the controlled component*
- *The batteries in the hand-held remote control are dead*
- *The IR Sensor is turned off (see **page 22**)*

PROBLEM:

9. A Zone does not turn on when in the Party Mode

SOLUTION:

- *Check the system configuration settings for **PARTY OR WHOLE HOUSE MODE** **(page 19)***

PROBLEM:

10. A Zone does not turn on when in the Paging Mode

SOLUTION:

- *Check the system configuration settings for **PAGING** **(page 19)***

HAND-HELD REMOTE CONTROL TROUBLESHOOTING

PROBLEM:

1. LED does not blink when you press a key.

SOLUTION:

- *Try pressing different keys. Replace the batteries with 2 new AA batteries*

PROBLEM:

2. LED blinks when you press a key, but device does not respond.

SOLUTION:

- *Make sure the remote is aimed at your device and is not more than 40 feet away*

PROBLEM:

3. LED blinks one long blink while in SETUP mode.

SOLUTION:

- *An entry error has occurred (for example, wrong key). Try entering the sequence again*

PROBLEM:

4. Remote does not control devices or commands are not working properly.

SOLUTION:

- *Try all listed codes for the device. Make sure the device operates with an infrared remote control*

PROBLEM:

5. CH+, CH-, and LAST do not work for your RCA TV.

SOLUTION:

- *Due to RCA design from 1983 to 1987, only the original remote control will operate these functions*

PROBLEM:

6. Channels do not change properly when directly entering digits to change channels.

SOLUTION:

- *If the original remote control required you to press Enter to change channels, press Enter on this remote after entering the channel number*

SPECIFICATIONS

TUNER SECTION

FM TUNER

Frequency Range:
87.5 – 108 MHz

AM TUNER

Frequency Range:
530-1710 kHz

IF Rejection: >= 40dB

Image Rejection: >= 30dB

Selectivity:
>= 20dB (+/- 20KHz)

Usable Sensitivity:
<= 63dBu (S/N = 20dB)

S/N Ratio: >= 42dB

AMPLIFIER SECTION

Power Output:
20 watts per channel RMS at 8 ohms, from 20Hz to 20kHz with no more than 0.2% THD any zone driven

Frequency Response:
20Hz to 20kHz +0db/-3dB

Signal to Noise Ratio: 102dB

TONE ADJUSTMENTS

Treble (@10kHz):
+12dB/-12dB

Bass (@50Hz)
+12dB/-12dB

Variable Loudness:
Automatic

AUDIO INPUTS

Connectors:
Three pairs of stereo line-level analog inputs with gold-plated female RCA connectors

Input Impedance:
~10K ohms

CONTROL INTERFACES

Keypad Connector Ports
(4) RJ-45 Jacks

12V Control Output
3.5mm female tip-positive

IR Control Input
3.5mm female tip-positive

Flasher Outputs (2-4)
(3) 3.5mm female tip-positive (30mA peak)

Flasher Output HP
3.5mm female tip-positive (1A peak)

RS-232C
3.5mm female tip-positive

Expansion Port
RJ-45

GENERAL

Power Supply:
110V, 60 Hz

Power Consumption:
200 Watts

Dimensions:
17" wide x 1.75" high x 13" deep (43.2cm wide x 4.4cm high x 33cm deep)

Weight: 15 lbs, 6.8 kg

REMOTE CONTROL

Transmitter: Infrared

Signal Range:
Approximately 15-30 Feet (5m-10m)

Power Supply
Two “AA” batteries (1.5Vx 2)

NOTES

NOTES

BLENDING HIGH FIDELITY AND ARCHITECTURE®

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